

**DEPARTMENT OF DEVELOPMENT SERVICES
BUILDING DIVISION**

Technical Guideline

Effective: June 1, 2006

Number: TG-E-005

Revised: October 31, 2006

Code: 2002 NEC

SUBJECT: Generators

Interpretation: Generators which supply stationary equipment or are connected to stationary wiring methods shall require an electrical permit. Such generators shall require grounding in accordance with NEC 250.26 and shall comply with the requirements of the following guideline.

NOTE: Portable generators supplying portable equipment shall not require an electrical permit, provided they comply with NEC 250.34 (A). Vehicle-mounted generators supplying portable equipment shall not require an electrical permit, provided they comply with NEC 250.34 (B). Portable wiring shall be regulated by OSHA and meet all OSHA requirements for construction sites.

The requirements for the electrical installation and use of generators is the same as if power were provided by the Electrical Utility Company, and as such must conform to all the requirements for all of the other installations as covered by the National Electrical Code, Uniform Fire Code and other related documents. The following is a list of generally applicable requirements and the referenced code sections. Specific situations may require reference to additional code sections. This checklist is an effort to provide a guide to the most common requirements to be considered.

Field Application:

- Means shall be provided to disconnect all conductors in a building or other structure from the service-entrance conductors. *NEC 230.70*
- The service disconnecting means shall have a rating not less than the load to be carried, in accordance with Article 220. *NEC 230.79*
- Each ungrounded service conductor shall have overload protection. *NEC 230.90*
- AC systems of 50 volts to 1000 volts that supply premises wiring shall be grounded under any of the following conditions: (1) where the system can be grounded so that the maximum voltage to ground on the ungrounded conductors does not exceed 150 volts. *NEC 250.20 (B)*
- For AC premises wiring systems, the conductor to be grounded shall be the neutral conductor. *NEC 250.26*
- For a grounded system, an un-spliced main bonding jumper shall be used to connect the equipment grounding conductor(s) and the service-disconnect enclosure to the grounded conductor of the system within the enclosure for each service disconnect. *NEC 250.28*

- If available on the premises at each building or structure served, each item in 250.52(A) (1) through (A) (5) as modified in the Southern Nevada Amendments, shall be bonded together to form the grounding electrode system. Where none of these electrodes are available, one or more of the electrodes specified in 250.52(A) (4) through (A) (7), as amended, shall be installed and used. *NEC 250.50*
- Grounding electrode conductors smaller than # 6 shall be installed in a raceway. A raceway is not required for a # 6 that is free from exposure to physical damage, or a #4, if not exposed to severe physical damage. The G.E.C. shall be installed in one continuous length without a splice. *NEC 250.64*
- The size of the grounding electrode conductor of a grounded AC system shall not be less than given in Table 250.66, except as permitted in 250.66(A) through (C). *NEC 250.66*
- The connection of a grounding electrode conductor to a grounding electrode shall be accessible, and shall be made in a manner that will ensure a permanent and effective grounding path. *NEC 250.68*
- Ground clamps shall be listed for the materials of the grounding electrode and the grounding electrode conductor and, where used on pipe, rod, or other buried electrodes, shall also be listed for direct soil burial or concrete encasement. *NEC 250.70*
- The service-disconnect enclosure and related enclosures shall be effectively bonded together. *NEC 250.92*
- Feeders and branch circuits shall be protected from over-current in accordance with their ampacities. See *NEC 240.4* for conductors or *NEC 240.5* for cords and cables.
- Over-current protection shall be provided at the point of supply or meet the requirements of one of the tap rules. *NEC 240.21*
- Over-current devices shall be accessible. *NEC 240.24*
- Over-current devices shall be protected from physical damage. *NEC 240.30*
- Over-current devices shall be installed in a vertical position. *NEC 240.33*
- Exposed non-current-carrying metal of fixed equipment likely to become energized shall be grounded. *NEC 250.110*
- The equipment grounding conductor run with or enclosing the circuit conductors shall be an approved type. *NEC 250.118*
- Equipment grounding conductors shall be identified as green, or bare, or green with yellow stripes. *NEC 250.119*
- Equipment grounding conductors shall be installed within a raceway or cable. *NEC 250.120*
- Equipment grounding conductors shall be sized as per *Table 250.122 NEC*.
- Ground-Fault Circuit-Interrupter Protection for Personnel shall be provided. *NEC 210.8*
- Where cord-wiring is approved, it shall be of the hard-usage or extra-hard-usage type listed and identified in *NEC 400.4*.
- Receptacles shall be of the grounding type, and rated for the circuit ampacity. *NEC 406.2*
- Receptacles shall be in direct contact with metal boxes or connected to a bonding jumper. Receptacle faces shall be flush with or project from faceplates of insulating material and project a minimum of 0.015 in. from metal faceplates. *NEC 406.6*
- Receptacles in wet locations shall have an enclosure that is weatherproof whether or not the attachment plug cap is inserted. *NEC 406.8*
- Grounding-type receptacles, cord connectors, and attachment plugs shall be provided with one fixed grounding pole in addition to the circuit poles. *NEC 406.9*

Generators that supply single-family residences or model homes may have additional factors to consider, leading to other code requirements, such as:

- If the system is grounded at a disconnecting means or a distribution panel, and there is ground continuity to the “other” building, the neutral cannot be grounded at the “other” building (model). *NEC 250.32*
- The possible back-feed to the utility feed shall be avoided. One method to achieve this is a transfer switch per *NEC 702.6*. An acceptable alternative would be a locking device on the main service disconnect, preventing accidental interconnection.
- The feed to model homes is typically a back-feed through a breaker and that breaker is required to be secured in place by an additional fastener. *NEC 408.16 (F)*